

## **ABSTRACT**

A method and apparatus to perform an automatic diagnosis for the poor performance of a control loop, and to determine whether or not the malfunctioning is caused principally by a poor adjustment of the controller tuning parameters. The method makes use of the fact that a poorly tuned control loop amplifies disturbances in a narrow frequency range around the so-called resonant frequency. The method comprises measuring an error in a control loop over time to determine a power spectral density of the error, determining a best fit analytical function describing the power spectral density and measuring a diagnostic value from a difference between the best fit analytical function and the power spectral density of the error.